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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,476	01/15/2004	Seong-Hak Moon	P-0642	4149
34610 7590 04/03/2007 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200			EXAMINER BODDIE, WILLIAM	
			ART UNIT	PAPER NUMBER
			2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/757,476	MOON, SEONG-HAK	
	Examiner	Art Unit	
	William L. Boddie	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-22 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. In an amendment dated, December 22nd, 2006, the Applicant amended claims 1, 3, 5-6, 8-9, 11-13, cancelled claims 2 and 4 and finally added new claims 14-22.

Currently claims 1, 3, and 5-22 are pending.

Drawings

2. The drawings were received on December 22nd, 2006. These drawings are acceptable.

Response to Amendment

3. The amendment to the claims filed on December 22nd, 2006 does not comply with the requirements of 37 CFR 1.121(c) because claim 1 contains amendments which are not properly marked. Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states:

(c) *Claims.* Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(2) *When claim text with markings is required.* All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims

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having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

4. Specifically, claim 13 was amended in the current amendment. Claim 13, however, is still listed as (Original). Applicant is requested to properly indicate this addition in a future correspondence. As this does not hamper the current examination, the claim will be examined under the assumption that the Applicant intended claim 13 to be listed as (Currently Amended).

Response to Arguments

5. Applicant's arguments with respect to claims 1, 3 and 5-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

6. Claim 22 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. All the limitations currently in claim 22 appear to already be present in independent claim 14.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 8-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

9. Specifically, claim 8, as amended, requires that the upper voltage generating unit is comprises the timing control signal as an input. This is contradictory to previous claims of which claim 8 is dependent, as well as to the specification. From the drawings, the timing control unit (141) is never input into the upper voltage generating unit (310 in fig. 3). Additionally the Applicant is pointed to page 9, lines 1-10 which discuss applying control signals to the upper voltage generating unit and timing control signals to the scan driving IC. In short the Examiner was unable to find any discussion regarding timing control signals being applied to the upper voltage generating unit. As such the newly amended claim 8 and its dependent claim 9 are seen as introducing new matter.

10. Claim 17 recites the limitation "the timing control signal" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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12. Claims 1, 3, 14-15 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (US 5,754,155).

With respect to claim 1, Kubota discloses, an apparatus (fig. 1) for driving a flat display panel (LCD panel; 1 in fig. 1) comprising a scan driving unit (11 in fig. 1,2) for controlling an upper voltage value (V_{gh} ' in fig. 1,2) and a lower voltage value (V_{gl} ' in fig. 1,2) which are applied to an integrated circuit (IC) (3 in fig. 1) for driving a scan electrode (GL in fig. 1) of a flat display panel,

wherein the scan driving unit comprises an amplifying unit (14 in fig. 2) for at least amplifying the upper voltage value to a predetermined level or converting the upper voltage value to a current and amplifying the converted current to a predetermined level (col. 9, lines 42-48).

With respect to claim 3, Kubota discloses, the apparatus of claim 1 (see above) wherein the amplifying unit comprises an operational amplifier (op-amp) (14 in fig. 2; col. 9, line 43).

With respect to claim 14, Kubota discloses, an apparatus (fig. 1) comprising:
a scan driving unit (11 in fig. 1,2) to control an upper voltage value (V_{gh} in fig. 1,2) and a lower voltage value (V_{gl} in fig. 1,2) to be applied to a circuit (3 in fig. 2) for driving a scan electrode (GL in fig. 1) of a flat display panel (1 in fig. 1), the scan driving unit including an amplifying unit (14 in fig. 2) to convert the upper voltage value to a current and amplify the converted current to a predetermined level (col. 9, lines 42-48).

With respect to claim 15, Kubota discloses, the apparatus of claim 14 (see above), wherein the amplifying unit comprises an operational amplifier (14 in fig. 2; col. 9, lines 42-48).

With respect to claim 22, Kubota discloses, the apparatus of claim 14 (see above), where the amplifying unit to amplify the upper voltage value to a predetermined level (col. 9, lines 42-48).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Furuhashi et al. (US 6,756,958).

With respect to claim 5, Kubota discloses, the apparatus of claim 1 (see above), wherein the amplifying unit comprise an OP-AMP (14 in fig. 2).

Kubota does not expressly disclose, a transistor connected to an output terminal of the OP-AMP.

Furuhashi discloses, wherein an amplifying unit for a LCD scan driver comprising an OP-AMP (313 in fig. 2; col. 4, lines 17-23) and a TR (314 in fig. 2; col. 4, lines 19-23) connected to an output terminal of the OP-AMP (clear from fig. 2).

Furuhashi and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to including the transistors of Furuhashi in the amplifying circuitry of Kubota.

The motivation for doing so would have been to enhance the picture quality (Furuhashi; col. 2, lines 16-21).

15. Claims 6-7 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Kudo (US 6,118,425).

With respect to claim 6, Kubota discloses, the apparatus of claim 1 (see above), wherein the scan driving unit further comprises:

an upper voltage generating unit (upper half of 12a in fig. 2) for outputting the upper voltage value (V_{gh} ' in fig. 2); and

a lower voltage generating unit (lower half of 12a in fig. 2) for outputting a lower voltage value (V_{gl} ' in fig. 2).

Kubota does not expressly disclose outputting the upper and lower voltage values on the basis of control signals.

Kudo disclose, a LCD power supply (fig. 12) comprising:

an upper voltage generating unit (231 in fig. 12) for outputting an upper voltage value (V_{yh} in fig. 12) on the basis of an upper switching control signal (CCH in fig. 12);
and

a lower voltage generating unit (232 in fig. 12) for outputting a lower voltage value (V_{yl} in fig. 12) on the basis of a lower switching control signal (CCL in fig. 12).

Kudo and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the switching circuitry of Kudo in the driver circuitry of Kubota.

The motivation for doing so would have been reduce shadowing and display irregularities (Kudo; col. 2, lines 39-52).

With respect to claim 7, Kubota and Kudo disclose, the apparatus of claim 6 (see above).

Kubota further discloses, wherein the scan driving unit selectively outputs one of the outputted upper voltage value (V_{gh} in fig. 2) and the outputted lower voltage value (V_{gl} in fig. 2), on the basis of a timing control signal (TIM in fig. 20).

With respect to claim 16, Kubota discloses, the apparatus of claim 14 (see above), wherein the scan driving unit further comprises:

an upper voltage generating unit (upper half of 12a in fig. 2) for outputting the upper voltage value (V_{gh}' in fig. 2); and

a lower voltage generating unit (lower half of 12a in fig. 2) for outputting a lower voltage value (V_{gl}' in fig. 2).

Kubota does not expressly disclose outputting the upper and lower voltage values on the basis of control signals.

Kudo disclose, a LCD power supply (fig. 12) comprising:

an upper voltage generating unit (231 in fig. 12) for outputting an upper voltage value (V_{yh} in fig. 12) on the basis of an upper switching control signal (CCH in fig. 12);
and

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a lower voltage generating unit (232 in fig. 12) for outputting a lower voltage value (V_{yl} in fig. 12) on the basis of a lower switching control signal (CCL in fig. 12).

Kudo and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the switching circuitry of Kudo in the driver circuitry of Kubota.

The motivation for doing so would have been reduce shadowing and display irregularities (Kudo; col. 2, lines 39-52).

With respect to claim 17, Kubota and Kudo disclose, the apparatus of claim 16 (see above).

Kubota further discloses, wherein the scan driving unit selectively outputs one of the outputted upper voltage value (V_{gh} in fig. 2) and the outputted lower voltage value (V_{gl} in fig. 2), on the basis of a timing control signal (TIM in fig. 20).

With respect to claims 18-21, Kubota and Kudo disclose, the apparatus of claim 16 (see above).

Kudo further discloses, wherein the upper and lower voltage generating units comprise switching devices (231-232 in fig. 12) which are switched on/off on the basis of the upper and lower switching control signals (CCH and CCL in fig. 12).

16. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Kudo (US 6,118,425) and further in view of Kishi et al. (5,786,794).

With respect to claims 8, 10 and 12, Kubota and Kudo disclose, the apparatus of claims 6 and 7(see above).

Kudo further discloses, wherein the upper and lower voltage generating units comprise switching devices (231-232 in fig. 12) which are switched on/off on the basis of the upper and lower switching control signals (CCH and CCL in fig. 12).

Neither Kubuto nor Kudo expressly disclose, wherein the switching devices have a push-pull form turned on/off on the basis of the upper and lower switching control signals.

Kishi discloses, a LCD driver circuit wherein voltage generating unit comprises switching devices (TR6 and TR7 in fig. 1) having a push-pull form (col. 6, line 66 – col. 7, line 5) turned on/off on the basis of a switching control signal (col. 10, lines 37-61).

Kubuto, Kudo and Kishi are all analogous art because they are all from the same field of endeavor, namely LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the voltage selectors of Kudo and Kubuto out of the push-pull transistor form taught by Kishi.

The motivation for doing so would have been both the low manufacturing costs and simple design associated with a push-pull transistor circuit.

With respect to claims 9, 11 and 13, Kubota, Kishi and Kudo disclose, the apparatus of claims 8, 10 and 12 (see above).

Kishi further discloses, wherein the switching devices comprise a FET (col. 10, lines 48-53).

Conclusion

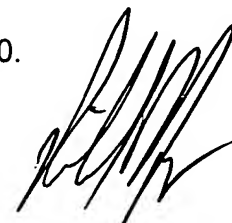
17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Moon (US 5,754,151) discloses LCD voltage generation circuitry, specifically note figure 2.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wlb
3/29/07



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